



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/608,644	06/27/2003	Duane Fasen	10004405-6	8317

7590 08/31/2004

AGILENT TECHNOLOGIES, INC.
Legal Department, DL429
Intellectual Property Administration
P.O. Box 7599
Loveland, CO 80537-0599

EXAMINER

MCPHERSON, JOHN A

ART UNIT	PAPER NUMBER
----------	--------------

1756

DATE MAILED: 08/31/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/608,644

Applicant(s)

FASEN ET AL.

Examiner

John A. McPherson

Art Unit

1756

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-8 and 10-12 is/are rejected.
- 7) ☒ Claim(s) 4 and 9 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 8/18/03, 8/21/03
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 5-8 and 10-11 are rejected under 35 U.S.C. 102(b) as being anticipated by US 5,258,608 [cited in the Information Disclosure Statement filed 8/18/03] (US '608). US '608 discloses a method of making a solid-state imaging device comprising the steps of providing a silicon substrate having an array of optoelectrical conversion regions, forming an insulating layer on the substrate, forming a light shielding layer on the insulating layer, forming an anti-reflection layer (comprising a layer silicon dioxide layer and an amorphous silicon layer) on the light shielding layer, forming a photoresist layer on the light shielding layer, patterning the photoresist layer through a photomask, selectively plasma etching the anti-reflection layer according to the pattern of the photoresist (corresponding to the "substantially removing exposed portions of the bottom antireflection coating" step of claim 1 in the present invention), and forming an array of color filtering regions on the anti-reflection layer. See the abstract; column 1, line 66 to column 2, line 12; column 2, line 52 to column 4, line 2; Figures 1A-E.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 5-8 and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,258,608 [cited in the Information Disclosure Statement filed 8/18/03] (US '608). The disclosure of US '608 is set forth above in paragraph 1. However, US '608 does not disclose an antireflection layer comprising a dyed organic film-forming material or a light-absorbing polymeric film-forming material, nor does US '608 disclose an image sensor comprising a CMOS image sensor. The Examiner takes Official Notice that layers comprising a dyed organic film-forming material or a light-absorbing polymeric film-forming material are known in the photolithographic art as antireflection layers for reducing undesired reflected light when exposing overlying photoresist layers. Furthermore, the Examiner takes Official Notice that a CMOS image sensor is known in the imager art as an image sensor having a specific kind of optoelectrical conversion regions useful for converting light images into electronic signals. It would have been obvious to one skilled in the requisite art to utilize either a dyed organic film-forming material or a light-absorbing polymeric film-forming material as the composition of the antireflective layer in the process of US '608 because it is known that these materials are useful for reducing

undesired reflected light when exposing overlying photoresist layers.

Furthermore, it would have been obvious to one skilled in the requisite art to utilize a CMOS image sensor as the solid-state imaging device in the process of US '608 because it is known in the art that a CMOS image sensor is an image sensor having a specific kind of optoelectrical conversion regions useful for converting light images into electronic signals.

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 6,614,479 discloses a solid-state image pickup device comprising an antireflection film formed between an in-layer lens and a color filter.

JP 4-364071 discloses a method of making a solid-state image pick up device comprising the steps of forming an anti-reflection overlaid on a light shielding film, and then forming a color separation filter from a resist film.

JP 4-103166 discloses a method of making a color solid-state image sensing device comprising the steps of forming an antireflection film on a light blocking film, and then forming a color filters by patterning them through exposure.

Allowable Subject Matter

4. Claims 4 and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.


5. The Examiner notes that claim 1 could be amended so as to contain allowable subject matter by specifying that the step of "substantially removing exposed portions of the bottom antireflection coating" is directed to removing exposed portions of the antireflective coating not covered by the color filter array. See Figures 4 and 5 of the present application.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John A. McPherson whose telephone number is (571) 272-1386. The examiner can normally be reached on Monday through Friday, 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on (571) 272-1385. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1756

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John A. McPherson
Primary Examiner
Art Unit 1756

JAM
8/27/04